

HELIUM MANAGEMENT CONTROL SYSTEM

ABSTRACT OF THE DISCLOSURE

A helium management control system for controlling the helium refrigerant supply from a common manifold supplies a plurality of cryogenic refrigerators with an appropriate helium supply. The system employs a plurality of sensors to monitor and regulate the overall refrigerant supply to deliver an appropriate refrigerant supply to each of the cryogenic refrigerators depending on the computed aggregate cooling demand of all of the cryogenic refrigerators. An appropriate supply of helium is distributed to each cryopump by sensing excess and sparse helium refrigerant and redistributing refrigerant accordingly. If the total refrigeration supply exceeds the total refrigerant demand, or consumption, excess refrigerant is directed to cryogenic refrigerators which can utilize the excess helium to complete a current cooling function more quickly. Similarly, if the total refrigeration demand exceeds the total refrigeration supply, the refrigerant supply to some or all of the cryogenic refrigerators will be reduced accordingly so that detrimental or slowing effects are minimized based upon the current cooling function.

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